NOTE XXIV.

A NEW ENTOZOON FROM STRUTHIO MOLYBDOPHANES, RCHW.

DESCRIBED BY

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Sclerostoma Struthionis, n. sp.

(Plate 8).

Examining the intestinal tract of a female of *Struthio molybdophanes* Rchw., died in the Zoological garden at Rotterdam, I found in both the coeca a large number of Nematoids, which I believe to represent a new species, belonging to the genus *Sclerostoma* Rud. The parasite is characterized as follows:

Body cylindrical, transversely striated, slightly narrowed in front, attenuated gradually towards the posterior extremity, with two narrow lateral-membranes. Anterior part of the head surrounded by an annular wall. Buccal capsule with a single row of stiff cilia, surrounding the mouth and a longitudinal furrow along the middle of the dorsal side. The sub-median oral papillae are conical, the lateral ones spade-shaped. Two small, pointed neck-papillae about the middle of the oesophagus. The caudal extremity of the male bent backwards and furnished with a trilobed bursa, consisting of two broad, rather polygonal, lateral lobes and a narrower, pear-shaped dorsal one. Each posterior ray bears at its base two short secondary branches, of which the external is somewhat longer than the internal.

The posterior lateral ray (costa posterior externa Schneid. [1])) is rather slender and originates beneath the base of the common stam of the posterior rays; the middle rays are separated, the anterior being larger than the posterior. The anterior lateral ray (costa anterior externa Schneid.) is short and narrow, not much longer than the half of the middle ray; two anterior rays, of which the external is somewhat longer than the internal. Before the cloacal opening of the male there are two large and several small papillae. Two long, slightly S-like bent spicules, measuring 0,87 m.m., with their distal extremity curved knee-like. The caudal extremity of the female terminating in a conical, pointed tail; a large, papillose elevation before the vulva, situated 0,25 m.m. above the point of the tail. A bifurcated vagina, passing into two parallel uterine ducts, directed forwards and terminating each in a long ovarian coecum, with numerous coils.

Length of male 17 m.m., breadth 0,42 m.m.

Length of female 23 m.m., breadth 0,7 m.m.

The cuticula is furnished with annular grooves, surrounding the whole body and not interrupted in the lateral lines; they lie on a distance of 0,012 m.m. from each other. About $^2/_3$ of the length of the oesophagus the cuticula shows on each side in the lateral line a cup-like depression, in which is placed a small spine, resting on a papillose thickening of the hypodermis. Two similar, but much smaller spines are situated near the base of the conical tail of the female. At a short distance behind the anterior extremity of the body, on the place of insertion of the oral papillae, there is a constriction separating an annular wall from the rest of the body. The oral aperture is surrounded by a crown of numerous conical cilia, standing on a broad edge of the anterior opening of the

1) Schneider, Monographie der Nematoden, p. 130.

buccal capsule; this edge shows at the innerside a number of rod-like thickenings, corresponding exactly with the number of cilia. Along the middle of the dorsal side, nearly over the whole length of the buccal capsule, there is a cleft, bounded on each side by a list, which is a continuation of the inferior border of the capsule; this list has a faintly crenulated border and shows small irregular figures, produced, as I believe, by the presence of small beams, which are bifurcated at their inferior end and support the list. The fissure is able to be widened and is covered by a vaulted, elastic piece of chitine. According to the description of Mr. Schulthess [1]) the buccal capsule of *Dochmius duodenalis* Leuck. shows a similar fissure; the irregular dark figures of the list however are supposed by him to be due to the presence of openings. We find two pear-shaped neck-glands with a long efferent duct, quite like in *D. duodenalis* Leuck. The wall of the intestine is furnished with a black pigment and shows often in its lower part singular nodular thickenings.

The reproductive organ of the male consists of the testis, the seminal vesicle, separated at its superior and inferior end by a constriction from the rest of the vas deferens, and of the ejaculatory duct. The testis, beginning with its blind extremity at a short distance beneath the inferior part of the oesophagus, lies with numerous loop-like coils, increasing in width, along the anterior part of the intestine to about $^1/_3$ of the body-length; here it makes a S-like flexure, directed forwards, and passes into the wide, thinwalled seminal pouch, measuring about 2 m.m. in length. The ejaculatory duct in its beginning nearly as broad as the seminal vesicle, is attenuating gradually towards the tail; its muscular wall consists, like in the vagina, of two layers of spirally twisted fibres. The spicules are fur-

1) Beiträge zur Anatomie von *Dochmius duodenalis* Leuck., Zeitschr. f. Wissensch. Zoologie, Bd. XXXVII, 1882, p. 163.

nished with two broad wings, transversely striated, attenuating towards both extremities and rolled towards each other at the ventral side, like in *Filaria attenuata* R. [1]); their colour is brown, except in the inferior half of the wings. The spicules are held together by a short, tubular piece of chitine, splitted at one side like a penn-holder; it lies at a short distance above the cloacal opening.

As regards the reproductive organs of the female, they are remarkably long, exceeding the body in length several times. The ovarian tubes are frequently coiled upon themselves and around the intestinal canal; though lying with their largest part in the anterior half of the body, they are extending with a loop to a short distance from the tail, about $^1/_3$ of the body-length. The oviduct is a cylindrical tube, downwards gradually increasing in width, and densely filled up with several rows of ova; before passing into the uterus the oviduct however suddenly becomes narrowed, its diameter measuring only $^1/_3$ of the preceeding part and the ova therefore can only pass through this duct in a single row. This inferior, slender part of the oviduct was indicated by Meissner with the name of Eiweissschlauch, because it was supposed by him to have the function of secreting albumen; since this suggestion is rejected by different authors [2]), it seems to me more probable that the meaning of this duct is to assure better the impregnation of the eggs, if they are entering one by one into the uterus. For I find the upper slender part of the uterus constantly densely filled up with spermatozoa, and no doubt this is the very place of impregnation, which could be rightly indicated with Leuckart's [3]) name of »poche copulatrice"; however this part is by no means separated from the middle, broader

1) Schneider, l. c., Pl. XXII, fig. 3.

2) E. van Beneden, l'Appareil sexuel femelle de l'*Ascaride mégalocéphale*, Archives de Biologie, T. IV, p. 98.

3) v. Beneden, l. c. p. 102.

portion of the uterus, which contains eggs in every state of segmentation.

The uteri are situated parallel to each other along the intestine, exceeding a little the half of the body-length; the eggs, they contain, have a length of 0,072 m.m. With their inferior end the uterine ducts join the two corns of the bifurcated vagina, which is covered with a thick muscular sheath; certainly Schneider [1]) was not right in regarding this part of the oviduct as an uterus, because, as I indicated before, already a higher situated part of the oviduct contains embryos. The vagina consists of a short common duct and two longer corns, not unlike that of *Deletrocephalus dimidiatus* Dies. [2]); each corn is separated by a constriction, nearly on the middle of its length, in an upper and under portion. Only the upper half is coated with the two characteristic layers of crossing diagonal muscles; the lower half, like the common duct, shows only longitudinal muscles, twisted somewhat spirally. The vulva lies 0,5 m.m. from the end of the tail.

As far as I know, only two species of Strongylids are hitherto known to infest Ostrichs: 1°. *Deletrocephalus (Strongylus* Schn.) *dimidiatus* Dies. [3]), characterized by its six-lobed mouth-edge, its buccal capsule with longitudinal rows of denticles and its long spicules, measuring 5 m.m., from *Rhea americana* Lath.; 2°. *Strongylus Douglassii* Cobb. [4]) with simple unarmed mouth, with short ($^1/_{10}$ m.m.), stout spicules, and with a small number of large-sized eggs, from *Struthio camelus* L.

1) Schneider, l. c. p. 258; Leuckart, Die menschliche Parasiten, 1876, p. 431.

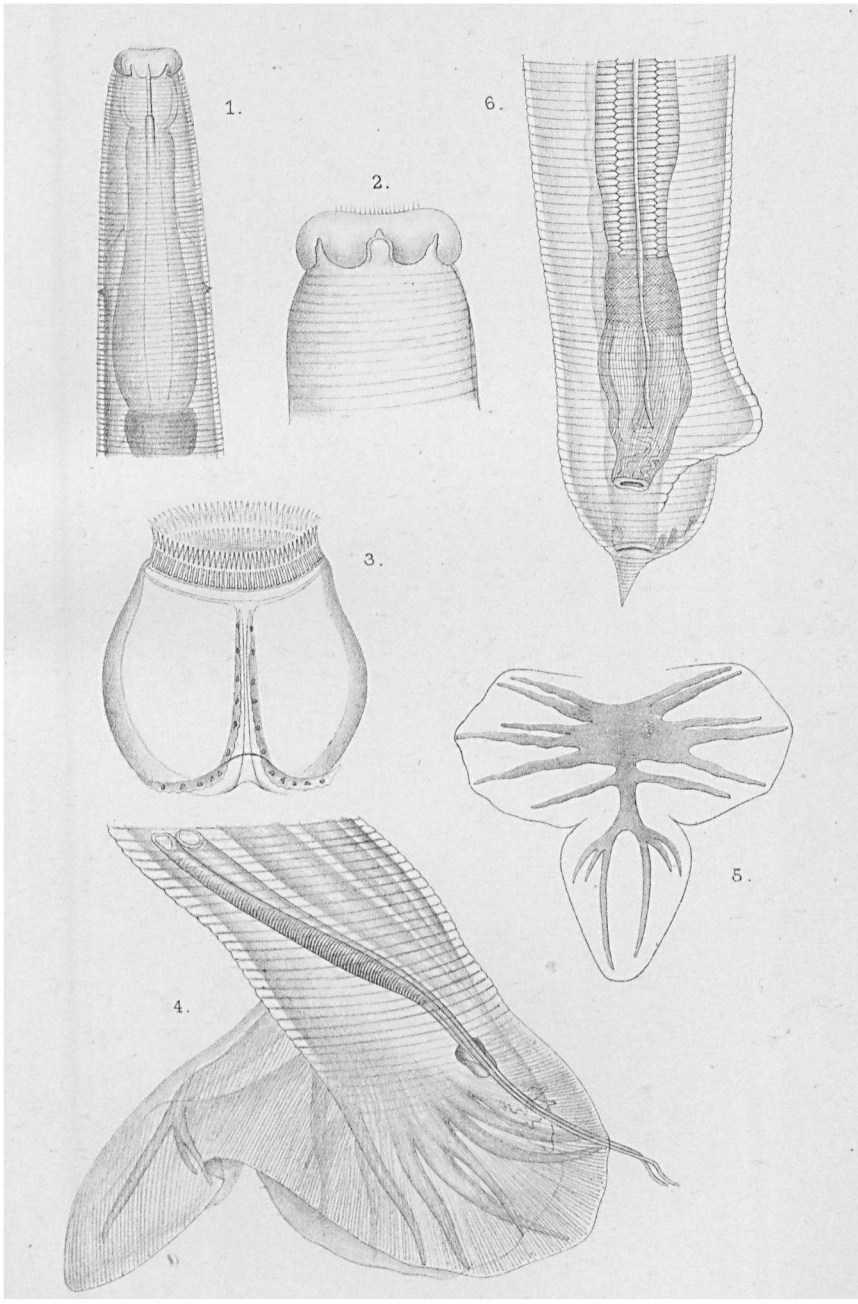
2) Molin, Il sottordine degli Acrofalli, Memorie dell' I. R. Istituto Veneto, Vol. IX, 1860, p. 427, Pl. XXXII, fig. 2.

3) Diesing, Systema Helminthum, Vol. II, 1851, p. 298; idem, Denkschriften K. Akad. Wissensch. Wien, Vol. IX, 1855, p. 183, Pl. VI; Schneider, l. c., p. 136, Pl. VIII, fig. 14 and 15; Molin, l. c., p. 567.

4) Spencer Cobbold, New Entozoon from the Ostrich, Journal Linnean Society, Zoology, Vol. XVI, 1882, p. 184, Pl. 4.

Explanation of the plate.

Fig. 1. Anterior part of the body. × 36 diam.
Fig. 2. Cephalic extremity, lateral view. × 65 diam.
Fig. 3. Buccal capsule. × 90 diam.
Fig. 4. Caudal extremity of the male, lateral view. × 65 diam.
Fig. 5. Bursa of the male, surface-view. × 36 diam.
Fig. 6. Caudal extremity of the female. × 36 diam.



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SCLEROSTOMA STRUTHIONIS *Horst.*